Provider / Seller Vocabulary Re-Design

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Document Purpose

The purpose of this document is:

1. Agree upon a model for describing the primary entities in an exchange of goods / services and their relationships
2. Share two primary proposals to modify the model in which providers, sellers, and similar are described
3. Collect common usage scenarios and apply these propopals as a way to validate their design and motivate a decision towards one or the other

The prototypical scenario driving this workstream is the need to clearly describe the relationship between an airline through which a boarding pass is purchased, and the airline which flies the plane. The vocabulary as it exists today does not provide a clear and consistent message for doing so.

Proposed Model of Exchanges

This model attempts to describe the primary entities in an exchange of goods / services and their relationship with each other. For practical purposes, a given vocabulary is used, but this is not intended as the prescribed vocabulary; it's purpose is for use in this model and later reference only.

Alignment on this fundamental model and an ability to reference the entities represented is pivotal in terms of coming to alignment of a common vocabulary for describing the various types of entities and exchange scenarios we are interested in.

consumer <-> **buyer** <-> **broker** <-> **seller** <-> **provider**

provider - the service provider, service operator, or service performer; the goods producer. In our prototype flights examples, the provider is the airline that operates or flies the plane. There is usually only one provider in a given exchange.

seller - the entity which sells or offers services or goods. The seller may sell / offer goods and services on behalf of a **provider**, or the **provider** may also be the **seller**. In our prototype flights example, the **seller** is the airline through which a ticket is purchased. If the plane associated with the ticket is also owned / operated by that same airline, the airline is also the **provider**. It will be common for more than one seller to be involved in an exchange, for example, in the case of a reseller.

broker - an entity involved in a transaction that arranges for an exchange between a **buyer** and **seller**. A broker never acquires or releases ownership of a product or service involved in an exchange. In our prototype flights example, if the ticket was purchased via Expedia.com, Expedia.com becomes the broker between the person purchasing the ticket and the airline selling it. At no point during the transaction does Expedia take ownership of the ticket.

buyer - the entity which purchases / books services or goods. The buyer may purchase / book services or goods from **sellers** on behalf of a **consumer**, or the **consumer** themselves may serve as the **buyer** (similar to the relationship between **sellers** and **providers**). In our prototype flight example, if John purchases the ticket and Jack uses the ticket to fly on the plan, John is a **buyer**.

consumer - the entity to / for which the service will be performed or goods ownership be exchanged / delivered. In our prototype flights examples, the consumer is the person that flies on the plane. If John purchases the ticket and Jack uses the ticket to fly on the plan, Jack is the **consumer**. There is usually only one consumer in a given exchange.

Proposal Alpha
Discussion: http://lists.w3.org/Archives/Public/public-vocabs/2014Jun/0188.html

1. The provider property has existed on CreativeWork for some time and is heavily used. Leave it as is.
2. Deprecate all other uses of provider under a new property "serviceProvider". The domain would be:
    BusTrip

Flight
Reservation
Service
TrainTrip
3. Keep carrier on ParcelDelivery.
4. Deprecate carrier on Flight.
5. Expand the domain for the existing serviceOperator to include Flight.
Flight > serviceOperator replaces Flight > carrier.
6. Deprecate vendor in favor of BuyAction > seller.
7. Deprecate merchant in favor of Order > seller.
8. Deprecate bookingAgent in favor of the new 'broker' property

Proposal Beta

Proposal Alpha solves the problem that needs to be solved. This alternative proposal attempts to do the same, but attempts to use only the existing vocabulary. The changes instead would be in the descriptions associated with existing terms and intended usage model.

- Leverage the existing 'provider' property to describe the service provider, service operator, or service performer (see **provider** in exchange model) and update its description to more clearly indicate this intended usage;
- Leverage the existing 'seller' property to describe the entities which sell or offer a service on behalf of the actual service provider (see **seller** in exchange model). In the case of flights, this would be the airline through which a flight was booked. If a 'seller' is not provided, it is assumed the 'provider' is also the 'seller'.
- Introduce a 'broker' property to describe entities that map to the **broker** concept in the exchange model.

- deprecate 'bookingAgent' in favor of the more generic, newly proposed 'broker' property
- deprecate 'vendor' in favor of re-using 'seller'
- deprecate 'merchant' in favor of re-using 'seller'
- deprecate 'carrier' within Flight and ParcelDelivery in favor of using the newly described 'provider'

Common Issues

- In both proposals, it was overly difficult to find a term that satisfied the needs of expressing entities involved in offering non-monetary / non-commercial goods and services. The end result was a recommendation to overload usage of 'seller' for these scenarios w/ a description clarifying this additional, non-traditional usage.

- In both proposals, what is commonly referred to as a seller, may also be referred to as a buyer, depending up on the perspective. A perfect example is a re-seller. They are a buyer when they purchase product from the producer and a seller when they 're-sell' it. The answer may be that these in fact are two different transactions and their role in each differs respectively.
- We needed to maintain the conceptual model behind 'Offer' (see above issue)
- We needed to keep schema.org's Action-oriented and non-Action vocab in sync, and cross-referenced appropriately.

Scenarios

The scenarios below represent a sample used to test validity of the two proposals. For each example, the entities represented in the scenario are mapped to terminology / concepts prescribed by each proposal

1. You can watch the movie Terminator on Netflix

> Proposal Alpha
> Netflix → Provider
>
> Proposal Beta
> Netflix -> Provider

2. See's Candies selling a product through Amazon.com, shipped directly from See's Candies. Amazon.com does not keep it in stock.

> Proposal Alpha
> See's Candies → Offer.seller
> Amazon.com → Order.seller
> (Must link Order to Offer)
>
> Proposal Beta
> See's Candies -> Seller (and likely Provider)
> Amazon.com -> Broker

3. Expedia marketing tickets offered by United Airlines and operated by Swiss Air.

> Proposal Alpha
> Expedia → Reservation.broker
> United Airlines → Flight.serviceProvider
> Swiss Air → Flight.serviceOperator

Proposal Beta
Expedia -> Broker
United Airlines -> Seller
Swiss Air -> Provider

4. Booking travel through Concur on a flight sold by United Airlines and operated by Swiss Air.

Proposal Alpha
Concur → Reservation.broker
United Airlines → Flight.serviceProvider
Swiss Air → Flight.serviceOperator

Proposal Beta
Concur -> Broker
United Airlines -> Seller
Swiss Air -> Provider

5. A library has a book to lend.
Proposal Alpha
Library → serviceProvider

Proposal Beta
Library -> Provider

6. The MBTA commuter rail is operated by the Massachusetts Bay Commuter Railroad Company (MBCR). MBTA is a government entity. MBCR is a private contractor. How do I express the service provider is MBTA, but the subcontractor is MBCR? Are we keeping serviceOperator?

Proposal Alpha
MBTA → serviceProvider
MBCR → serviceOperator

Proposal Beta
MBTA - Seller
MBCR - Provider

7. The US Veterans Administration offers mental health services through Massachusetts General Hospital. Who is the provider? No one is selling anything.

Proposal Alpha
USVA → serviceProvider
MGH → serviceOperator

Proposal Beta
USVA - Seller
MGH - Provider
reasoning: you purchase / acquire health service coverage from USVA and then the actual mental health service is provided / performed by MGH. if you receive coverage from USVA for free, then this is the same issue we other 'non-monetary-offers' and not specific to the alternative proposal.

8. A cell phone bill from Verizon.

Proposal Alpha
Verizon → serviceProvider

Proposal Beta
Verizon - Provider

9. A credit card bill from American Exrpress.

Proposal Alpha
AmEx → seller (Not really handled well)

Proposal Beta
AMEX -> Seller
reasoning: akin to any other form of loan, credit card companies are loaning you money to spend and then billing you to pay off the loan. they are selling and servicing the loan, just like a bank. note they are both the seller and the provider,

Current Vocabulary

Properties and Classes associated with describing the entities involved in offering or selling something. as Schema.org stands today. For reference.

[provider](#) (used on BusTrip, CreativeWork, Flight, Reservation, Service, TrainTrip); - The person or organization providing the service, reservation, or creative work. The provider may subcontract out the service.

    Service.provider
    Taxi.provider
    GovernmentService.provider
    CreativeWork.provider
    Reservation.provider **
    Flight.provider

TrainTrip.provider
BusTrip.provider

serviceOperator - The operating organization, if different from the provider. This enables the representation of services that are provided by an organization, but operated by another organization like a subcontractor.
GovernmentService.serviceOperator

bookingAgent - If the reservation was not booked directly through the provider, the third-party booking agent can be recorded through this property.
Reservation.bookingAgent **

vendor (used on BuyAction) - A sub property of participant. The seller. The participant/person/organization that sold the object.
BuyAction.vendor

- merchant (used on Order)
 - The party taking the order (e.g. Amazon.com is a merchant for many sellers).
Order.merchant

seller - The organization or person making the offer.
Offer.seller

carrier - The party responsible for the parcel delivery.
Flight.carrier
ParcelDelivery.carrier

TradeAction (supertype of BuyAction...)

** note that Reservation encompasses the subclasses (BusReservation, EventReservation, FlightReservation, FoodEstablishmentReservation, LodingReservation, RentalCarReservation, ReservationPackage, TaxiReservation, TrainReservation)